

Appendix A: Summary of Comments and Responses

The following is a summary of comments received regarding the Nenana Basin Oil and Gas Exploration License.

Public Hearings

Public Hearings were held in Nenana, April 22, and in Minto and Fairbanks, April 23, 2002. Below is a list of those who testified and a Summary of Common Issues raised at the public hearings and ADNRC's response. (NOTE: Some of the names were difficult to read, and some did not include their community; our apologies for any misread names or misinterpreted locations.)

The following testified at the April 22 Nenana hearing:

Alexander, Leland	Nenana
Charlie, Brian	Nenana
Coghill, Jeff	Nenana
Demienteff, Gary	Nenana
Hancock, Edna	Nenana
Ketzler, Bear	Fairbanks
Lord, Victor	Nenana
Ramey, Gayle	Nenana
Sunnyboy, Terry and Sharon	North Pole

The following testified at the April 23 Minto hearing:

Charlie, Clifford	Minto
Charlie, Ken	Minto
Charlie, Neal	Minto
Charlie, Vincent	Minto
Riley, Rocky	Minto
Silas, Ronnie	Minto
Titas, Virgil	Minto
Weiser, Vera	Minto

The following testified at the April 23 Fairbanks hearing:

Burggraf, Roger	Fairbanks
Clayton, Sam	Fairbanks
Dale, Henri	Fairbanks
Dodson, Jim	Fairbanks
Edwardson, Charles	Fairbanks
Fletcher-Nolan, Ali	Fairbanks
Frank, Conrad	Fairbanks
Fresco, Nancy	Fairbanks
Fritz, Stacy	Fairbanks
Goggin, James	Fairbanks
Hanod, Keith	Fairbanks
Hutchison, Garry	Fairbanks

Irwin, Tom	Fairbanks
Ketzler, Bear	Fairbanks
Landry, Larry	Fairbanks
Mayo, Larry	Fairbanks
McGuire, Sean	Fairbanks
Moriarty, Kara	Fairbanks
Musick, Mike	Ester
Otis, Buzz	Fairbanks
Piryear, Eddie	Nenana
Ross, Don	Fairbanks
Sampson, Matthew A.	Fairbanks
Sharp, Tim	Fairbanks
Shaw, David	Fairbanks
Siglan, Roger	Fairbanks
Solie, Rick	Fairbanks
Tindell, Curtis	Fairbanks
Tolson, Pat	Hydaburg
Veltes, Rubdy	Fairbanks
Wagner, Rick	Fairbanks
Wildfang, Phil	Fairbanks

Summary of Common Issues

<p>Issue 1:</p> <p>The proposed license will benefit interior Alaska. A commercial discovery of gas will provide an alternative source of fuel that will help keep energy prices down. Natural gas is cheaper than electricity and cleaner than fuel oil, coal, or wood. This project can and will be done with very minimal environmental impact due to the small footprint needed to develop a natural gas resource.</p>	<p>If commercial quantities of natural gas are discovered it may result in a cheaper, cleaner source of energy for Fairbanks and surrounding communities. Much will depend on the location of the discovery and the cost of bringing the gas to market. At this time it is impossible to predict what the cost of any gas produced will be in any given local. If energy costs are in fact lowered, this would have a stimulus effect on the local economy. If a commercial discovery is made on Doyon lands it will benefit their shareholders. ADNR believes that that the imposition of mitigation measures will minimize environmental impacts and that oil and gas development can coexist with other uses such as subsistence and recreation. The challenge is to balance these uses and to assure that development is done with minimum impact to the environment.</p>
<p>Issue 2.</p> <p>There is no need for this project because a North Slope gas line will soon be built.</p>	<p>A North Slope gas line in the near term is far from certain. A July 2002 study by Cambridge Energy Research Associates concludes that under the most likely scenario, that North Slope gas will not enter the market until after 2020. Also, it is not certain at this point which route a North Slope gas line will take. The Nenana basin exploration license is not</p>

	intended to compete with or replace a North Slope Gas line.
<p>Issue 3.</p> <p>Gas development and seismic surveys will be detrimental to the MFSGR. Cutting of seismic lines will damage the environment and provide access to non-resident hunters. Stronger limitations are needed on the manner in which seismic exploration can be done. Extensive forest clearing should not be permitted. Seismic surveys should only be done by helicopter. The public needs information on how many seismic lines are expected to be cut for exploration.</p>	<p>In the past, seismic surveys required long clear-cuts for line-of-sight measurements. That practice left distinct lines, which crisscrossed the forest. Modern seismic surveys use global satellite positioning instruments and line-of-sight clearing is no longer necessary. Though most areas are accessible by helicopter, this might not be the most practical means of obtaining seismic data.</p> <p>While the number of line-miles and their general area is public information, the actual number of seismic lines and their locations are considered confidential and cannot be released by the division.</p> <p>Seismic surveys will be conducted in the winter in order to minimize impacts to the environment, fish and wildlife and their habitats, and on people. See Chapter Five, "Reasonably Foreseeable Effects."</p>
<p>Issue 4.</p> <p>There are many costs associated with development, including habitat loss, degradation of hunting grounds, loss of subsistence resources, and loss of recreation areas.</p>	<p>Habitat loss and effects on subsistence resources are discussed in Chapter Five, "Cumulative Effects."</p> <p>A number of mitigation measures have been designed to minimize degradation of hunting grounds, subsistence resources, and recreation areas. For example, winter and summer off-road vehicular traffic is restricted and must be approved in a plan of operations.</p> <p>Licensees must avoid siting facilities in key wetlands and identified sensitive habitat areas.</p> <p>Facilities other than docks, or road and pipeline crossings, will not be sited within 500 ft. of fishbearing streams.</p> <p>Permanent facility siting is prohibited within ¼-mile of the banks of major rivers.</p> <p>Facilities must be consolidated, temporary, and not constructed of gravel, in order to minimize habitat loss and creation of new, permanent access.</p> <p>Removal of water from fishbearing rivers, streams, and natural lakes shall be subject to</p>

	<p>prior written approval by DMLW and ADF&G.</p> <p>Gravel mining sites will be restricted to the minimum necessary to develop the field efficiently and must not be located within an active floodplain of a watercourse.</p> <p>Underground injection of drilling muds and cuttings is the preferred method of disposal.</p> <p>Surface discharge of drilling wastes into waterbodies and wetlands is prohibited.</p> <p>Unless authorized by NPDES or state permit, disposal of wastewater into freshwater bodies, including Class III, IV, VI, and VIII wetlands, is prohibited.</p> <p>Licensees are advised they must prepare contingency plans addressing prevention, detection, and cleanup of oil spills. Pipelines must be designed and located to facilitate clean-up.</p> <p>Buffer zones of not less than 500 ft. will be required to separate onshore oil storage facilities (with a capacity greater than 660 gallons) and sewage ponds from freshwater supplies, streams, and lakes and key wetlands.</p> <p>Licensees must use appropriate methods of garbage and putrescible waste disposal to minimize attracting foxes, bears, and other mammals.</p> <p>Restriction of public access to, or use of, the licensing area due to oil and gas activity is not permitted, except within the immediate vicinity of drill sites, buildings, and other facilities. Any area of restricted access must be justified in the plan of operations.</p> <p>Licensees are required to cooperate with agencies and the public to avoid conflicts by selecting alternative sites or implementing seasonal restrictions on certain activities.</p> <p>Plans of operation submitted for review and approval must describe the licensee's efforts to communicate with local communities, and interested local community groups, if any, in</p>
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	<p>the development of such plans.</p> <p>For a complete listing of mitigation measures, see Chapter Seven.</p>
<p>Issue 5.</p> <p>The Minto Flats State Game Refuge (MFSGR) should remain, as it is now, an area reserved for habitat and subsistence uses. Oil and gas development is incompatible with the purposes for which the refuge was established. HB 527 mandates oil and gas development within the refuge.</p>	<p>The MFSGR is not, and never was, reserved for habitat and subsistence use only. Designation as a state game refuge does not necessarily preclude oil and gas development. It was not the intention of the legislature to prohibit oil and gas development when they created the Minto Flats Game State Refuge. In 2002 the legislature further clarified its intent by passing HB 527 which states that entry upon the MFSGR for purposes of exploration and development of oil and gas resources shall be permitted unless a person demonstrates, on the basis of sound science or local traditional knowledge, that exploration and development are incompatible with the purposes of the refuge. The governor signed this bill on June 21, 2002. The management plan for the MFSGR allows for oil and gas development if ADF&G determines that proposed activities are consistent with the refuge's statutory purposes. ADF&G will make decisions regarding the compatibility of gas development once project siting and design information is available.</p>

State Agencies

ADF&G, Habitat Division, Ott, A. Fairbanks AK, 5/24/02

Provides additional site-specific fish and wildlife resource information.	Comment noted. This information has been incorporated into the final finding.
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ADNR, Division of Forestry, Maisch, C., 5/31/2002

Forestry will work with the Division of Oil and Gas regarding land use permits and other authorizations.	Comment noted.
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Local Government

City of Fairbanks, Thompson, S., Mayor 4/11/02

Submits Council Resolution 4002 supporting the efforts of Dyon Limited and Andex to explore the Nenana basin for natural gas and urges the State of Alaska to expeditiously grant a final exploration license subject to permits	Comment noted. See response to Issue 1.
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<p>and appropriate mitigation measures. The resolution cites the proximity of the license area to the city of Fairbanks and the potential to supply the city with natural gas to fuel a portion of local power generation needs. A local supply of natural gas will reduce electric power purchases from Anchorage and provide consumers with choices not available today. Available technology will assure a small footprint associated with development in the basin including the Minto Flats SGR. The lands in the basin can accommodate a variety of uses significant impacts without significant impacts. Fairbanks has a successful history of providing supplies and services to the energy industry including many highly skilled workers. The people of interior Alaska will benefit directly from the availability of natural gas.</p>	
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Minto Village Council, Baker, L., 5/29/2002

<p>The Minto Village Council supports Nenana, Andex Resources, and Doyon Ltd. in their request for an exploration license in the Nenana basin subject to environmental requirements. The Council feels the project will assist in providing a stable economic base.</p>	<p>Comment noted. See response to Issue 1.</p>
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City of Nenana, Mayrand, J. Mayor, 5/28/2002

<p>The community of Nenana has held several meetings regarding this project. The populace has come to the conclusion the project will have minimum effect on game and subsistence. To date we have received nothing but good comments on this proposal. is the city's Resolution 2002-08 is in support of this project.</p>	<p>Comment noted. See response to Issue 1.</p>
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Denali Borough, Healy AK, 5/19/2002

<p>The Denali Borough Assembly endorses the approval of the gas exploration license.</p>	<p>Comment noted.</p>
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Fairbanks North Star Borough, Bartos, H. 4/11/02

<p>Submits Assembly Resolution 2002-33 supporting the efforts of Dyon Limited and Andex to explore the Nenana basin for natural gas and urges the State of Alaska to grant an exploration license to Andex, subject to</p>	<p>Comment noted. See response to Issue 1.</p>
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<p>permits and appropriate mitigation measures. The resolution cites the proximity of the license area to the city of Fairbanks and the potential to supply the city with natural gas sooner than North Slope gas. A local supply of natural gas will reduce electric power purchases from Anchorage and provide consumers with choices not available today. The highly regulated nature of oil and gas exploration technology will assure a small footprint. The lands in the basin can accommodate a variety of uses without significant impacts including to the Minto Flats SGR. Fairbanks has a successful history of providing supplies and services to the energy industry and many workers in the area have the skills and experience needed in the construction and operation of energy production facilities. Residents and businesses in interior Alaska will benefit directly from the availability of a local source of natural gas.</p>	
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Others

Alaska Outdoor Council, VanderZanden, J., Fairbanks, AK 5/31/2002	
The Alaska Outdoor Council wishes to monitor and review the Nenana gas exploration proposal. Please keep the AOC informed of the decisions on this proposal.	The Alaska Outdoor Council has been added to DO&G's mailing list.

Allen, M, Fairbanks AK, 4/29/02	
Grew up in the Kantishna River area and knows the country quite well. Supports exploration because it would be good for Nenana, Minto, Fairbanks and the down river villages. It will employ a good number of locals. The environmental impact will be minimal due to the proposed planning. Oil development has occurred on the North Slope and the birds, owls, lemmings, caribou, ducks geese, etc. are still there.	Comment noted. See response to Issue 1.

The Alliance, Houle, L. Anchorage AK, 5/9/2002	
The Alliance strongly supports the efforts of Andex and Doyon to explore for natural gas in the Nenana basin and urge the state to grant the license for the entire 499,840 acres. We fail to understand the logic of the blanket denial of	Comment noted. See response to Issue 1. ADF&G will consider allowing exploration and development within the core area of the MFSGR on a case-by-case basis. ADF&G and ADNR may, in some instances, find some oil

surface activity within the 277,960-acre core area of the Minto Flats SGR. A year round denial of surface activity is not based on sound science and should not be included in the license. Protection of sensitive areas is best done on a site-specific analysis. Modern day exploration and development techniques greatly diminish the footprints associated natural gas extraction. The economic benefits of this license, which may result in a clean source of energy, for home, commercial and industrial use in Fairbanks is significant.	and gas development incompatible with the refuge's purpose and management plan. As a balancing agency, DO&G believes that multiple use can occur on state lands and that oil and gas exploration and development can coexist with other uses.
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Chapman, J., Ester AK, 5/31/2002

Gas development and seismic surveys will be detrimental to the MFSGR. If exploration is allowed to proceed it must be done with stringent environmental stipulations. For example, exploration should only occur by helicopter only when ground is frozen to a 10 to 12 foot depth.	Comment noted. See response to Issue 3.
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Collins, F., Fairbanks, AK, 5/16/2002

Has viewed many cuts across the country from previous seismic activity. They do not heal; some are still visible after 30 years. Previous drilling encountered only gravel. The chances of petroleum deposits are much too slight to be worth risking the Minto Flats SGR and the country north of it.	Comment noted. See response to Issue 3. ADNR believes that the gas potential of this basin ranges from moderate to good, and is considered to be one of the more prospective of the interior basins.
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Collins, M. & J., Lake Minchumina, AK 5/27/2002

This area is utilized by hunters, trappers, and fishermen from Nenana, Minto, and other remote areas. Exploration and development will have a serious detrimental affect on my livelihood and sense of well being.	Comment noted. See response to Issue 4.
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Doyon, Limited, Mery, J., 7/16/01

Doyon Limited is the Native Regional Corporation for interior Alaska. Doyon supports the exploration license proposal. Doyon owns subsurface rights, including oil and gas within the DO&G's study area and has a desire to conduct it's own exploration there.	Comment noted.
Doyon's geologic evaluation of the area indicates that there is a high prospectiveness for natural gas. The discovery of substantial	Comment noted. The fiscal effects of the license are discussed in Chapter Five. Also, see response to Issue 1.

natural gas would be very beneficial to all Alaska residents especially those living in the interior by providing a clean fuel for heating and power generation. The state will gain royalty and tax revenue, additional jobs for Alaskans, contributions to the permanent fund, and new property tax base. Any production from Doyon lands would benefit our shareholders	
There are significant public interest values associated with fish and game habitat, especially in Minto Flats. Hunting, fishing, and trapping will need to be protected.	Fish, wildlife and habitat are discussed in Chapter Three. Hunting, fishing and subsistence are discussed in Chapter Four.
We recommend that informational meetings be held in Nenana, Minto, and Fairbanks before the preliminary finding is issued to help the public understand the process and provide you with information.	DO&G held meetings in Nenana, Minto, and Fairbanks in April 2002 during the public comment period following issuance of the preliminary finding. We have found that such meetings are more productive after the public has had a chance to review the document and understand what is being proposed and the possible ramifications.

Deforest, R., Fairbanks, AK, 5/31/2002

HB 527 will give latitude to explore and develop the MFSGR. Gas development should not compromise the purpose of the refuge.	Comment noted. See response to Issue 5.
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DeLong, T. Tolovana Hot Springs, AK, 5/31/2002

It is essential that the purposes of establishing the MFSGR is recognized and adhered to. Activities must occur outside the core area of the refuge as they would fragment habitat.	Comment noted. See response to Issue 5.
The preliminary notice was poorly advertised. The fact that only Doyon commented is an indication of the poor public notice.	The initial notice sent out in May 2001 was placed in the Anchorage and Fairbanks newspapers; mailed to individuals, organizations and agencies on the division's mailing list; sent to local post offices for posting; and sent to the media (radio and television stations). There were several stories in the Fairbanks newspaper related to the license proposal. The division normally does not receive public comment following this initial notice; most are received in response to the preliminary finding.
If natural gas is found it should be reformulated into hydrogen to power fuel cells for power and heat generation.	Common fuels like natural gas, have hydrogen in their molecular structure and this hydrogen can be extracted to power a fuel cell. Unfortunately, this process also generates heat and produces other gases besides hydrogen.

	Various devices are used to try to clean up the hydrogen, but the hydrogen that comes out of them is not pure, and this lowers the efficiency of the fuel cell. Advances in technology may make fuel cells a viable alternative in the future. It will be up to the licensee to determine how any potential discoveries will be marketed.
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Drew, J., Fairbanks, AK, 5/31/2002

Clean cost saving energy in Fairbanks is essential for the diversification of industry and a stable economy. This will provide employment opportunities and revenue for schools, roads and other essential public services. Exploration must be carried out in as broad an area as possible.	Comment noted. See response to Issue 1.
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Fairbanks Building and Construction Trades Council, AFL-CIO, Quakenbush, J., and Wingfield, J.C., 4/26/2002

Submits resolution #02-02 in support of Andex Resource's exploration license. The Council has a history of supporting sustainable and environmentally sound resource development. This could lead to a cleaner cheaper alternative energy source for supplying power to the interior, which could lead to the creation of ancillary businesses and diversify the economy. The quantity and quality of gas reserves will not be known without exploration.	Comment noted. See response to Issue 1.
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Fairbanks Economic Development Corporation, Owen, D. 4/17/2002

Supports the exploration license for Andex. The lands in the Nenana basin are able to accommodate a variety of recreational uses and resource development without negative impact. The discovery and commercialization of natural gas in the Interior would provide opportunities for economic growth and give consumers a choice not available today. It would reduce the need to purchase electrical power from Anchorage.	Comment noted. See response to Issue 1.
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Fields, J, Fairbanks AK, 5/30/2002

Clean energy at affordable prices is essential for the interior economy to start growing. There is no reason not to allow multiple use of	Comment noted. See response to Issue 1.
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the land. Let's get on with it.	
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Forsberg, W, and L., Healy AK, 5/22/2002

We own a remote homestead on the Kantishna River and travel by dog team and snow machine from there to Nenana. Exploration permits should stipulate that consideration be given to current uses of the area. There was a seismic crew working in the early 1980s and while we found it was sometimes dangerous getting our dogs around the large vehicles the trails that were left were beneficial both for human access and for wildlife by creating new growth for moose browse and other animals. We suggest using the same grid of cat trails so as to minimize the number of new trails.	Comment noted. See response to Issues 3 and 4.
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Frank, C, Fairbanks AK, 4/23/2002

This could be a tremendous opportunity for all the people of the northern rail belt. One only has to look at the tremendous benefits Cook Inlet gas brought to the Anchorage, Kenai, and Mat-Su areas to see the possibilities. I hope this wonderful chance will not be squandered by petty bickering between environmentalists and those promoting development.	Comment noted. See response to Issue 1.
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Fritz, Stacy, Fairbanks AK 5/30/2002

A game refuge is established to keep development out of an area and protect its wildlife. Gas exploration in the Minto Flats Game Refuge is completely contrary to the purpose of the refuge and the state's duty is to protect that land for the intended purpose.	Comment noted. See response to Issue 5.
While I support an increased use of natural gas, I believe the state was very wise in designating a utility corridor to known natural gas reserves on the North Slope. That route and those reserves should be used before risky and environmentally destructive new exploration occurs.	It is not certain when a gas line from the North Slope will be built or which route it will take. Gas from the Nenana basin may be available sooner than any potential North Slope gas line. This, of course, depends on the discovery of commercial quantities of gas. There is no way to know if a Nenana basin gas project is feasible until the area is licensed and exploration takes place.
DNR must adopt current national practices of applying a value to undeveloped land. It is unjust that development decisions like this are accepted because no value of the land is considered in the equation.	ADNR is not required to adopt current national practices of applying a value to undeveloped land. ADNR views these practices as highly speculative. Under AS 38.05.035 (h), DO&G is not required to speculate about possible future effects subject to future permitting that cannot

	reasonably be determined until the project is more specifically defined.
Much of the area in question is used for subsistence purposes and this type of development would threaten that use of the land.	ADNR manages state lands for multiple use. Oil and gas has coexisted with other uses such as subsistence and recreation for nearly four decades. Mitigation measures are designed to protect environmental quality. Additional restrictions may be imposed at the plan of operations stage of exploration and development.
I myself hunt and recreate in the area and would be adversely impacted by a decision to develop it.	See response above.

Golden Valley Electric Association, Lamal, K., Fairbanks, AK, 5/22/2002

The GEVA supports the proposal. Significant finds of oils and/or gas would of great interest to GVEA. Highly regulated oil and gas development will result in a small footprint. Natural gas in the Fairbanks area will spur economic development.	Comment noted. See response to Issue 1.
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Greater Fairbanks Chamber of Commerce, Otis, B and Moriarty, K, 4/15/2002

Submits Resolution 02-0415A supporting the efforts of Dyon Limited and Andex to explore the Nenana basin for natural gas and urges the State of Alaska to expeditiously grant an exploration license subject to permits and mitigation measures. The resolution cites the proximity of the license area to the city of Fairbanks. The existing highway, rail and electric transmission right of way could be utilized and gas from the Nenana basin could be available several years sooner than North Slope gas. Gas has the potential to supply the city and fuel a portion of local power generation needs. A local supply of natural gas will reduce electric power purchases from Anchorage and provide consumers with choices not available today. Appropriate planning will accommodate a number of uses without significant impacts on natural values, including the Minto Flats SGR. The lands in the basin can accommodate a variety of uses significant impacts without significant impacts. Fairbanks has a successful history of providing supplies and services to the energy industry including many highly skilled workers. The	Comment noted. See response to Issue 1.
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people of interior Alaska will benefit directly from the availability of natural gas.	
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Irwin, T., Fairbanks, AK 4/23/2002

Supports the Nenana basin exploration license. The involvement and oversight of Doyon and the Alaska Department of Fish and Game will result in the proposed exploration being conducted efficiently and in an environmentally sound manner.	Comment noted. See response to Issue 1.
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Keim, F., Fairbanks, AK, 5/7/2002

This exploration activity will negatively impact swans, cranes, moose, and countless other waterfowl and animals. This area should not be opened when it is probable that a gas pipeline will be constructed from the North Slope, which will provide more gas to Interior communities.	Comment noted. See response to Issues 2 and 4.
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Landry, L. Fairbanks AK 5/31/2002

I suggest you work with ADF&G to assure that the resources and wildlife in the MFSGR are protected to the utmost and no permanent roads are constructed in any phase of this project.	ADF&G and ADNR have worked in the past to provide protection for wildlife in the Cook Inlet area and on the North Slope. There is no reason why this cooperation cannot continue in the Nenana basin. ADF&G will make decisions regarding the compatibility of gas development once project siting and design information is available. See response to Issue 5.
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Larsen, A., Fairbanks, AK, 5/31/2002

Minto Flats is the most productive freshwater wetland that I have ever visited. Development would drastically change the ecosystem.	Comment noted. See response to Issue 4.
The licensee is expected to identify sensitive habitat. What parameters will be used?	DO&G and ADF&G shall consult to identify the least sensitive areas. The parameters will be established at the plan of operations phase, on a case-by case basis, when a site-specific project is proposed.
How do you intend to reduce the effects of habitat fragmentation?	Facilities can be designed and sited to minimize habitat fragmentation. See response to Issue 4.
How do you intend to maintain the natural hydrology found at Minto Flats?	Under Mitigation Measure 6, licensees should minimize the impact of development on key wetlands. Key wetlands are those that are important to fish, waterfowl, shorebirds, and other wildlife species because of their high

	value or scarcity in the region. DO&G shall consult with the ADF&G to identify the least sensitive areas within the study area during the course of its review of the licensees' plan of operation.
How do you plan to insure that access to this area is not increased by development?	Mitigation Measure 3 prohibits construction of permanent roads during the exploration phase. Construction of temporary roads may be allowed. Exceptions may be granted if compliance with the mitigation measure is not feasible or prudent. DO&G must consult with the Division of Mining, Land and Water and ADF&G when granting exceptions. DMLW may restrict public access to these roads at the permitting phase.
I'm concerned that Minto and Nenana and other villages will not benefit because of the cost to convert all the housing to natural gas from oil.	Whether a particular community will receive gas depends on where gas is discovered, the costs of constructing a pipeline to serve the community, the cost of feeder lines to each home, and the costs of converting home heating systems to gas. The cost of gas to the homeowner will have to be low enough to recoup these costs over time. At this phase of the license proposal it is impossible to predict what these costs will be. Some communities may decide the expense of converting to gas is too high.
How is the licensee going to monitor water quality and prevent degradation due to turbidity, pH modification, water removal?	<p>Non-hazardous waste disposal is regulated by the ADEC and effluent discharge guidelines must be met. Industrial discharges are monitored at point-sources and results of mandatory monitoring tests are available from the EPA. Standards govern the acceptable use, storage, handling and disposal of all hazardous substances.</p> <p>In order for a waste facility to be built, plans must undergo permit review and be designed to meet Alaska Water Quality Standards (18 AAC 70.020). Water quality criteria identify what are maximum acceptable variations above "natural" or base-line levels as a result of man-induced change. Parameters which have natural ranges that cannot be exceeded include dissolved solids, dissolved oxygen, fecal coliform bacteria, pH, turbidity, temperature, any toxic substance, and petroleum products--oil and grease. These standards as well as Alaska Water Quality Standards (18 AAC 70.020) are reviewed and updated every few years.</p>

How does the licensee plan to rehabilitate the extremely patchy environment found at Minto flats?	Upon abandonment of material sites, drilling sites, roads, buildings, airstrips, or other facilities, such facilities must be removed and the site rehabilitated unless the Director, in consultation with ADF&G and ADEC, determines that such removal and rehabilitation is not in the state's best interest. In the MFSGR, this decision will be made by the Director with the concurrence of ADF&G. (See Paragraph 16 of the License Agreement or Paragraph 22 of the Conversion Lease for a detailed discussion of Rights of Termination).
Buffer zones should be increased to insure that noise won't affect birds.	Under Mitigation Measure 19, surface entry may be prohibited within ¼-mile of Trumpeter Swan nesting sites from April through August. Additional setbacks may be established for other species on a site-specific, case-by-case basis at the plan of operations phase.
Gravel roads should be prohibited during development because they will increase access and alter the environment.	A complete prohibition on roads would make it impossible to develop a gas field. Through the permitting process both state and federal agencies will have the opportunity to determine exactly where roads will be constructed, and how increased access can be minimized.
The MSFGR was set aside by the public and the stewards of our land as a refuge to protect this unique habitat.	Comment noted. See response to Issue 5.

Mayo, G., Fairbanks, AK, 5/24/2002

The best interest finding has no wildlife safeguards.	Mitigation Measures to safeguard wildlife are in Chapter Seven. Also, see response to Issue 4.
There are questions about the ability of ADF&G and ADNRR to work together to provide adequate protection for wildlife.	ADF&G and ADNRR have worked in the past to provide protection for wildlife in the Cook Inlet area and on the North Slope. There is no reason why this cooperation cannot continue in the Nenana basin.
What are the full impacts of this proposal and how will they be avoided?	The potential effects of the exploration license are discussed in Chapter Five, "Reasonably Foreseeable Effects." Mitigation measures are listed in Chapter Seven.
The exploration company should be required to post a large bond.	The license contract requires that the licensee keep the license area open for inspection by authorized state officials. Each permittee must post a \$500,000 statewide bond to cover a drill site. License and lease operations approvals are generally granted for three years. A \$100,000 bond is required for seismic activity. The bond amount for other geophysical surveys is determined when the activity is proposed.

Mc Guire, B., Lake Tahoe CA, 5/29/2002

The Arctic refuge is for animals, for us and our children. Please do not destroy this marvelous area in any way.

The MFSGR is not the Arctic Refuge. Oil and gas exploration has taken place in other state refuges without those refuges being destroyed. Some of the mitigation measures address activity within the refuge.

Mc Guire, S., Fairbanks AK, 5/29/2002

Gas is a great fuel compared to oil or coal, but the MFSGR was established because of its fabulous natural characteristics. This is a wildlife refuge, keep the oil and gas rigs out of there. Please do not sell out our natural wonders for a few bucks.

Comment noted. See response to Issue 5.

McIntyre, C., Fairbanks AK 5/29/2002

The Nenana basin, with particular emphasis on the Minto Flats State Game Refuge, is one of the natural treasures of Alaska. The refuge was established by the legislature to ensure the protection and enhancement of habitat, the conservation of fish and wildlife, and to guarantee the continuation of hunting, fishing, trapping, and other compatible public uses within the Minto Flats area.

Many Alaskans depend on this area for game and food for their table. Minto Flats is one of the highest quality waterfowl habitats. Additionally, streams in the area provide passage and spawning areas for salmon.

Designation as a state game refuge does not necessarily preclude oil and gas development. It was not the intention of the legislature to prohibit oil and gas development when they created the Minto Flats Game State Refuge. The management plan for the MFSGR allows for oil and gas development if ADF&G determines that proposed activities are consistent with refuge's statutory purposes. ADF&G and ADNRR will make decisions regarding the compatibility of gas development once project siting and design information is available.

ADNRR manages state lands for multiple use. Oil and gas has coexisted with other uses such as subsistence and recreation for nearly four decades. Mitigation measures are designed to protect environmental quality. Additional restrictions may be imposed at the plan of operations stage of exploration and development.

Northern Alaska Environmental Center, Hussy, A. Fairbanks AK 5/29/2002

The Tanana Basin Area Plan (TBAP) stipulates primary surface uses are wildlife habitat, public recreation and forestry.

Under the TBAP, oil and gas leasing is allowed throughout the entire basin. See Chapter Four, "Current and Projected Use."

The Minto Flats State Game Refuge (MFSGR) should remain, as it is now, an area reserved for habitat and subsistence uses.

The MFSGR is not, and never was, reserved for habitat and subsistence use only. Oil and gas leasing has always been allowed in the refuge on a case-by-case basis, as determined

	by ADF&G. In 2002 the legislature further clarified it's intent by passing HB 527 which states that entry upon the MFSGR for purposes of exploration and development of oil and gas resources shall be permitted unless a person demonstrates, on the basis of sound science or local traditional knowledge, that exploration and development are incompatible with the purposes of the refuge. The governor signed this bill on June 21, 2002.
Oil and gas exploration and extraction should not be given primacy in every part of the proposed exploration region. The concept of multiple use, does not mean that all uses can--or should--take place on all state land.	Oil and gas exploration and extraction are not given primacy in every part of the study area. In the MFSGR for example, ADF&G and ADNR may, in some instances not find oil and gas development compatible with the refuge's purpose and management plan, on a site-specific basis. As a balancing agency, DO&G believes that multiple use can occur on state lands and that oil and gas exploration and development can coexist with other uses.
Stronger limitations are needed on the manner in which seismic exploration can be done. Extensive forest clearing should not be permitted.	See response to Issue 3.
A reclamation plan, even for exploration only, is required by law but not defined in the BIF.	Mitigation Measure 3c addresses rehabilitation of sites and facilities upon abandonment. See also Paragraph 16 of the License Agreement and Paragraph 22 of the Conversion Lease. These are in Appendices C and D of the best interest finding.
Surveys for Trumpeter swan nest locations have not been done.	ADF&G can undertake surveys of Trumpeter swan nest locations at the plan of operations phase when a site-specific project is proposed.
Waterfowl are not described beyond species listing (Table 3.2) in the biological section under birds, and waterfowl harvest is not mentioned under descriptions of "personal use hunting and fishing" (4-6).	The section on waterfowl has been expanded based on additional information provided by ADF&G and the University of Alaska, Fairbanks.
The BIF should specify that waterbodies must be inspected in all seasons before they can reliably labeled as non-fishbearing.	ADF&G can undertake surveys of waterbodies at the plan of operations phase when a site-specific project is proposed.
A stipulation should be added to provide adequate seasonal buffers for moose calving grounds and important overwintering sites.	ADF&G, the agency with expertise in this area, has not requested such a measure. However, this can be considered at the plan of operations phase when a site-specific project is proposed.
The claim that "natural contaminants" such as dead organic matter, algae, and silt are in any way similar to man-made contaminants that might result from oil and gas production is	The finding did not claim that "natural contaminants" are similar to man made contaminants. It said that natural as well as man-made contaminants could result in

highly misleading (5-13).	exceedences of water quality. For the final finding “natural contaminants” has been changed to “natural inputs.”
A stipulation should be added requiring that directional drilling must be utilized wherever possible to minimize the area impacted.	Directional drilling is useful in avoiding surface use conflicts and may be appropriate for specific areas in the Nenana basin. The decision to employ directional drilling will be made on a case-by-case basis at the plan of operations phase when a site-specific project is proposed.
Stronger noise protections for prime waterfowl habitat areas should be added to the BIF.	Under Mitigation Measure 7, licensees should minimize sight and sound impacts from facilities through the use of insulation and other muffling techniques, acoustic enclosures, screening to conceal facilities, and using alternative techniques to minimize impacts.
It is our understanding that compressed and supercooled liquid natural gas can cause subsurface ice formation if the buried pipe is too close to waterbodies where permafrost is discontinuous.	At this time we can conceive of no scenario where the Nenana basin gas would have to be supercooled. The gas can flow through pipelines as a vapor. In any event, buried pipelines can be insulated to prevent subsurface ice formation.
Sewage and fuel storage should require impermeable liners regardless of the size of the tank, including those under 660 gallons.	ADEC can require impermeable liners for smaller tanks on a site specific, case-by-case basis at the permitting phase.
Disposal of garbage and domestic refuse (7-5) should not be allowed on any part of the MFSGR.	Garbage must be disposed at an approved upland site. It is inconceivable that ADF&G, ADEC, or ADNRR would approve a site within the MFSGR.
Although we have been assured that any gas leaks would vent harmlessly into the atmosphere, it is unclear what the effects of indoor, underground or underwater leaks might be.	Indoor leaks would most likely raise the levels of natural gas in the enclosed area until the leak is stopped and the leak dissipated. Underwater leaks would bubble to the surface and then disperse into the atmosphere.
The BIF should lay the framework for the creation of a citizen’s oversight committee comprised of local stakeholder representatives.	Under AS 38.05.035(e), ADNRR is not required to lay the framework for the creation of a citizen’s oversight committee comprised of local stakeholder representatives
The stipulations leave many loopholes by using phrases such as "to the extent feasible and prudent" and "may [rather than shall] not be allowed." Such weak wording could render stipulations ineffective.	These mitigation measures, as written, give the state flexibility to consider alternatives at future permitting phases. ADNRR may include new mitigation measures at the time it reviews lease plans of exploration, operation, or development.
The sentence that states “Except as indicated, the restrictions listed below do not apply to geophysical exploration on state lands, geophysical exploration activities are governed by 11AAC96”(7-2) is not clear in meaning to the average member of the public.	None of the mitigation measures apply to geophysical exploration. The geophysical exploration permit is a specific type of land use permit issued by DO&G (11 AAC 96.010) and is separate from the licensing and best interest finding process. The sentence was reworded to

	clarify this.
To prudently protect water quantity, DNR, in conjunction with ADF&G, should identify what in-stream flow reservation applications have been made for the Minto Flats.	The affects of appropriation of water will be considered at the plan of operations phase when a site-specific project is proposed.
We have been informed that the wording of the licensee advisory for the MFSGR is incorrect. The public should be told what the new or edited language will be before a final version of the BIF is released, and we should be allowed to comment on the amended text.	The purpose of the Preliminary Best Interest Finding is to take public and agency comments and then present any changes in the final finding. ADNR is not required to release the new or edited language for comment before release of the final finding. If a member of the public has objections to the final finding they can request reconsideration by the commissioner by September 11.
HB527 <i>mandates</i> that the Refuge be opened for oil and gas development, barring positive proof of harm. Moreover, it is unclear how and when the law would allow for public input and participation, or exactly how it may alter the BIF process.	HB 527 does not mandate the MFSGR be opened. The new statute does not alter the BIF process and the opportunity for public input is unchanged.
The BIF assigns no economic value to any of the natural resources that might be lost, reduced, or compromised by oil and gas exploration and development. The field of environmental economics would provide useful insights into realistic valuation of typically “non-market” values, and should be employed in the BIF’s economic analysis of this and all projects	ADNR finds environmental economics highly speculative. DO&G is not required to engage in a speculative analysis of the valuation of typically “non-market” values. Under AS 38.05.035(h), DO&G is not required to speculate about the possible future effects subject to future permitting that cannot reasonably be determined until the project or proposed use is more specifically defined.
The PBIF did not examine the many costs associated with development, including habitat loss, degradation of hunting grounds, loss of subsistence resources, loss of recreation areas, and poorly planned growth of urban infrastructure.	See response to Issue 4.
No mention is made of “boom and bust” economics if no commercial quantities of oil or gas are found, or if they are quickly depleted.	If no commercial quantities of hydrocarbons were found, there would be no development. A small discovery that would be quickly depleted would not be a commercial discovery.
No mention is made of the costs of management, mitigation efforts, research, licensing and enforcement by state agencies. These costs are incurred by the state, and could be very substantial.	At this phase of the proposal it is impossible to predict the costs of management, mitigation efforts, research, licensing and enforcement by state agencies. The amount of gas reserves in the license will not be known until exploration takes place.
The PBIF (5-13) fails to highlight the negative effect of potential increase in access by non-local hunters, who would increase competition for limited resources on public and private property.	This is discussed in Chapter Five, “Effects on Subsistence Uses.”

Page 1-12 of the BIF notes that “every reasonable effort will be made to prevent, control, or suppress any fire in the operating area. Fire suppression in the boreal forest profoundly alters ecosystem dynamics and species composition and is not necessarily desirable.	This is a regulation of the Division of Mining, Land and Water (11 AAC 93.120) for land use permits. Fire suppression will only occur in the operating area not throughout the entire license area. Therefore, implementation of this regulation will not profoundly alter the ecosystem of the boreal forest.
Information on how many seismic lines are expected to be cut for exploration would help the public more accurately and specifically comment on the BIF.	See response to Issue 3.

Otis, B., Fairbanks, AK, 5/31/2002

This project will mean a lot to our community and Interior Alaska. It will provide an alternative source of fuel that will help keep energy prices down. Gas is cleaner and better for the environment. The project can be done with minimal surface impact. The City of Nenana and the village of Minto support this project.	Comment noted. See response to Issue 1.
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Resource Development Council, Portman, C. Anchorage AK, 5/10/2002

The RDC encourages the state to grant an exploration license to Andex. RDC is confident that with appropriate mitigation measures, exploration activities and subsequent development of gas reserves can coexist with wildlife values of the Minto Flats SGR. Fairbanks and the Interior stand to gain major economic benefits. Uses of natural gas include power generation, home and commercial heating and industrial applications. Natural gas could be compressed for shipment by barge to villages. New jobs and other economic benefits would accrue to the local economy.	Comment noted. See response to Issue 1.
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Ross, D. Fairbanks AK 4/28/2002

It’s only a matter of time until Prudhoe Bay gas will be available.	Comment noted. See response to Issue 2.
We do not know if there are commercial quantities of gas in the Nenana basin. Benefits will be short-term. We do know that this project will have permanent long lasting impacts on the land.	We will not know if commercial quantities of gas exist in the Nenana basin or if a long-term supply exists until exploration takes place. Implementation of mitigation measures will reduce negative impacts from exploration and development. See response to Issue 4.
All seismic exploration should be done by	Comment noted. See response to Issue 3

helicopter. Overland seismic should be prohibited.	
Winter roads should be situated to minimize impacts so there is not a proliferation of roads and trails that would later be abandoned.	Mitigation Measure 3 restricts the development of roads during the exploration phase. Exceptions may be granted if compliance with the mitigation measure is not feasible or prudent. DO&G must consult with ADF&G and DMLW when granting exceptions. During the development phase it is possible that permanent roads may be constructed. This could lead to increased public access to hunting fishing and trapping areas. It will be up to the state's resource agencies to manage and mitigate conflicts between user groups. ADF&G has the authority to regulate hunting, fishing and trapping activities. DMLW may restrict public access to these roads at the permitting phase
The MFSGR, north of the Tanana River, should only be accessed by directional drilling.	Directional drilling is useful in avoiding surface use conflicts and may be appropriate for specific areas in the Nenana basin. The decision to employ directional drilling will be made on a case-by-case basis at the plan of operations phase when a site-specific project is proposed.

Seth De Ya-Ah Corporation, Baker, L., 5/30/2002

The corporation in conjunction with the Minto Village Council would like to express support for the proposal, contingent on environmental requirements. The project will provide a stable economic base for Nenana and the surrounding area.	Comment noted. See response to Issue 1.
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Shields, M., Fairbanks AK 5/29/2002

The Minto Flats Game Refuge is a very important area for waterfowl, moose, wolves, beaver, lynx, fox, otter, mink and other fur-bearers. Traffic and noise from oil and gas exploration will leave permanent scarring to the wetlands and should not be allowed in the Refuge. This land should be managed as habitat, the best long-term interest of the people of state. You must act responsibly and not just jump at the chance for development. It already has an important purpose.	Comment noted. See response to Issue 5.
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Sparks, R. Fairbanks AK, 5/31/2002	
One of the biggest impediments to life in Interior Alaska is the high cost of fuel, gasoline, heating fuel, and propane. The Minto Flats area has the potential to provide a ready relatively inexpensive source of fuel for heating.	Comment noted. See response to Issue 1.

Arctic Audubon Society, Turner, A., Fairbanks AK, 5/29/2002	
We support ADF&G's recommendation to exclude exploration in the most sensitive areas of the MFSGR. An area designated as a refuge should not be open to exploration and development.	Comment noted. See response to Issue 5.
Exploration outside the core area will still cause impacts. Cutting seismic lines, drilling wells, and constructing pipelines will fragment habitat.	Comment noted. See response to Issue 3.
Seismic data indicates no significant deposits of gas beneath the MFSGR.	The Nenana basin is thought to be gas-prone, particularly in and around the margins of its deeper areas. Seismic data have not been gathered over a significant portion of the deeper parts of the basin, located within the MFSGR. Until exploratory drilling takes place it is impossible to determine if there are significant deposits of gas beneath the MFSGR.
Water injection and surface discharges could pose significant water quality problems.	Underground injection of drilling muds and cuttings is preferred method of disposal. For onshore development, produced waters must be injected. Surface discharge of drilling wastes into waterbodies and wetlands is prohibited. Unless authorized by NPDES or state permit, disposal of wastewater into freshwater bodies, including Class III, IV, VI, and VIII wetlands, is prohibited. See Chapter Seven, "Mitigation Measures."
Moose are present in the area in winter and some Trumpeter Swans stay until November. Trumpeter Swans are believed to be negatively affected by noise and human activity.	Surface entry near trumpeter swan nesting areas may be prohibited during the summer months, and permanent facilities may not be permitted within 1/4-mile in these areas to avoid displacement of swans. See Chapter Five, "Reasonably Foreseeable Effects," and
We do not support the creation of gravel roads.	A complete prohibition on roads would make it impossible to develop a gas field. Through the permitting process both state and federal agencies will have the opportunity to determine exactly where roads will be constructed.

<p>Air quality needs to be monitored carefully during exploration and development.</p>	<p>Federal and state statutes and regulations that will mitigate potential impacts to air quality include: 42 U.S.C. §§ 7401-7671. Federal Clean Air Act. AS 46.03. Provides for environmental conservation including water and air pollution control, radiation and hazardous waste protection. 18 AAC 50. Provides for air quality control including permit requirements, permit review criteria, and regulation compliance criteria. 18 AAC 50.300. Sets up standards for air quality at certain facilities including oil and gas facilities at the time of construction, operation, or modification. See Chapter Five, “Reasonably Foreseeable Effects.”</p>
<p>There needs to be a clear mandate setting forth the requirements for reclamation.</p>	<p>Under Mitigation Measure 3c, upon abandonment of material sites, drilling sites, roads, buildings, airstrips, or other facilities, such facilities must be removed and the site rehabilitated unless the Director, in consultation with ADF&G and ADEC, determines that such removal and rehabilitation is not in the state's best interest. In the MFSGR, this decision will be made by the Director with the concurrence of ADF&G. (See Paragraph 16 of the License Agreement or Paragraph 22 of the Conversion Lease for a detailed discussion of Rights of Termination).</p>
<p>The mitigation measures do not go far enough in protecting bird habitat, protecting subsistence and limiting roads access.</p>	<p>The mitigation measures have been developed over the years by ADNR, ADF&G and ADEC. The Division believes that the mitigation measures and existing state and federal environmental laws achieve a proper balance between oil and gas development and environmental protection. ADNR may include new mitigation measures at the time it reviews lease plans of exploration, operation, or development.</p>
<p>The MFSGR has no facilities to deal with non-burnable waste. A specific site needs to be identified.</p>	<p>Mitigation Measure 17 regulates solid waste disposal. Garbage and domestic combustible refuse must be incinerated. Non-burnable wastes must be disposed of at an approved upland site. All solid wastes, including incinerator residue must be backhauled to a solid waste disposal site approved by ADEC. It is not necessary to identify a specific site at this phase of the project.</p>
<p>There is no mitigation measure dealing with human waste.</p>	<p>Human waste falls under non-burnable waste and must be disposed of at an approved upland site.</p>

The licensee should be required to contact ADF&G for historical data on the location of Trumpeter Swan nest sites. The licensee should not be allowed into sensitive nesting areas at all.	ADF&G will identify trumpeter swan nesting sites at the request of the licensee. See Chapter Seven, Mitigation Measure 19.
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Toghotthele Corp. Hancock, E., Nenana AK 5/17/2002

Toghotthele Corporation supports the Nenana Basin license to Andex Resources. This support is for the entire license area contingent on following environmental requirements. The project will provide a stable economic base for the community of Nenana and surrounding area.	Comment noted. See response to Issue 1.
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University of Alaska, Fairbanks, Lindburgh, M., 5/27/2002

The PBIF does not adequately describe the diversity of waterfowl in the region. Submits information on diversity of waterfowl that rely on the Minto Flats for migration, nesting, brood rearing, and molting.	Much of this information has been incorporated into the final best interest finding.
The MFSGR was established in 1988. The purpose of the refuge must be considered and preserved.	Comment noted. See response to Issue 5.
Evidence for the effects of disturbances from natural gas development is largely unknown. An extensive search did not produce a single document specific to the effects of gas development on wildlife populations.	There is a large body of knowledge on the effects of oil and gas development in Alaska, particularly on the North Slope. The effects of gas development (other than oil spill considerations) are generally the same as those for oil. There are some differences in transportation issues. Gas pipelines are generally buried and gas is safer to transport since any leak will evaporate into the atmosphere.
The BIF does not describe any measures that will be taken to reduce or restrict access to Minto Flats.	Mitigation Measure 3 restricts the development of roads during the exploration phase. Exceptions may be granted if compliance with the mitigation measure is not feasible or prudent. DO&G must consult with ADF&G and DMLW when granting exceptions. During the development phase it is possible that permanent roads may be constructed. This could lead to increased public access to hunting fishing and trapping areas. It will be up to the state's resource agencies to manage and mitigate conflicts between user groups. ADF&G has the authority to regulate hunting, fishing and trapping activities. DMLW may restrict public access to these roads at the

	permitting phase
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van den Berg, D., Fairbanks, AK, 4/24/2002

3-D seismic exploration employs a tight grid with many tight turns and cannot be employed any other way than from the ground employing cat trains. A lot of high quality habitat and aesthetic qualities might be flattened by exploration activity. How will seismic surveys interact with the unique ecosystem and landscape of Minto Flats and how many board feet of spruce will you push over?	Comment noted. See response to Issue 3.
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Wildfang, P., Fairbanks AK 5/28/02

I am not opposed to gas exploration in parts of the Nenana Basin or to some development of gas resources for local jobs and a source of clean burning fuel in the Fairbanks area. However, I am troubled with the poor process by which this project has germinated and grown in the last year. Too much of it has gone on behind closed doors. Public processes associated with this gas project have been minimal to lacking entirely.	The process for this exploration license has been open and public. It began with a Notice of Intent to Evaluate an Exploration License Proposal on May 17, 2001. This notice was published in the <i>Fairbanks Daily News-Miner</i> and the <i>Anchorage Daily News</i> . It was also posted on the Division of Oil and Gas website. It gave the public 60 days to respond. It was followed by a Request for Agency Information on July 3, 2001. A Preliminary Best Interest Finding was issued on April 12, 2002 with a 60-day public comment period. Three public meetings were held--in Nenana, April 22, and in Minto and Fairbanks April 23, 2002.
If ADNR had contacted ADF&G or the U.S. Fish and Wildlife Service, they would have discovered information on fish, waterfowl, furbearers, and moose that goes back to the 1950s for some species in what is now Minto Flats State Game Refuge. Some important wildlife statistics and distribution information were summarized in the refuge management plan (ADF&G, March 1992) yet never mentioned in the PBIF.	ADNR did contact ADF&G and the U.S. Fish and Wildlife Service. ADF&G provided information, which was incorporated into the preliminary finding. For the final finding ADF&G has provided even more detailed information.
Are readers to infer from Fig. 3.1 that because the broad arrows drawn for "known migration" pass south of the Tanana River that development activities north of the river pose less risk to waterfowl that breed there?"	The cited source for the map (ADF&G 1986, the Alaska Habitat Management Guide) presents migration information at a broad scale, and that the arrows depict general migratory patterns along river corridors including those of the Tanana, Kantishna, and Nenana rivers. The shaded areas of Figure 3.1, depicting known nesting and concentration areas, indicate that portions of the study area north of the Tanana River have high habitat

	values for ducks and geese.
Where the biological review did seem to provide information, sources of data were not provided to readers (e.g., map of duck and goose migration, nesting, and concentration in Fig. 3.1, p. 3-6)	The references for the maps in Chapter Three have been added to the bibliography (Appendix F).
I have a hard time believing that evidence of productive gas reservoirs north of the Tanana River in the Minto Flats State Game Refuge would not result in a concerted attempt to develop those reservoirs in the current Administration, regardless of biological resources at risk.	Through the permit review process, state and federal agencies will determine how best to proceed with any development proposals so that potential harmful effects to the environment and habitat are kept to a minimum. Within the MFSGR, ADF&G may, in some instances not find oil and gas development compatible with the refuge's management plan.
One issue not raised in either the PBIF or presentations given by Andex Resources at public meetings is noise from gas compressors, which presumably will be needed for condensation so liquid product can be transported through pipelines.	Gas compressors do generate noise. Some animals may be disturbed by noise and avoid the area, others may habituate to it. Mitigation measures would include site selection, consolidation of facilities, to limit the number of facilities and sound insulation in the compressor building.
Fire suppression is another issue that needs clarification for any subsequent development in the Minto Flats refuge. Natural fires are currently allowed to burn over much of the refuge later in the summer to maintain productive wildlife habitat. Construction standards relative to forest fire need to be explicitly stated in the final Best Interest Finding.	Since exploration and development will not occur throughout all of the MFSGR, natural fires will still be able to burn over much of the refuge. ADNRR is not required to explicitly state construction standards relative to forest fires in the best interest finding under AS 38.05.035 (g). These standards will be developed at the plan of operations phase on a site-specific, case-by-case basis with the assistance of the Division of Forestry.
I found the clever oxymoron "natural contaminants" of fresh waters (p. 5-13) an amusing value judgment. All the items described are part of the biogeochemical cycle in natural systems, although Giardia are believed to have been brought to North American water supplies through improper disposal of human feces. Human-caused contamination is just that--something caused by accident or negligence, particularly chemical or biological forms not naturally occurring in a specific area. Perhaps the BIF should rephrase "natural contaminants" to "natural inputs."	Adopted.
Increased access to gas development in the Nenana Basin from the existing road system will only increase the use of the area for timber development, hunting, and fishing. Local	Mitigation Measure 3 restricts the development of roads during the exploration phase. Exceptions may be granted if compliance with the mitigation measure is not feasible or

people have accessed this area just fine without roads since time immemorial.	prudent. The Division of Oil and Gas must consult with the Division of Mining, Land and Water and ADF&G when granting exceptions. During the development phase it is possible that permanent roads may be constructed. This could lead to increased public access to hunting fishing and trapping areas. It will be up to the state's resource agencies to manage and mitigate conflicts between user groups. ADF&G has the authority to regulate hunting, fishing and trapping activities. DMLW may restrict public access to these roads at the permitting phase Development of roads for oil and gas development does not necessarily lead to timber sales. Timber sales have their own public process and must be evaluated on their own merits.
The preliminary finding leads the reader to believe that seismic clearings will not be cut in the Nenana Basin. A commitment to not cut trails needs to be explicitly stated in the final BIF because 3-D seismic exploration requires data acquisition roughly every 100 m instead of every kilometer. Cutting of trails for 3-D seismic exploration is not acceptable in the Minto Flats State Game Refuge.	Comment noted. See response to Issue 3.
Mitigation Measure 9a seems to imply that impermeable liners will only be used for sewage and hydrocarbon storage tanks larger than 660 gallons. Within the Minto Flats State Game Refuge, ALL storage tanks of sewage, hydrocarbons, or chemicals need to have safety liners, regardless of capacity.	Mitigation Measure 9a also states that additional site-specific measures may be required by ADNR, with the concurrence of ADEC and will be addressed in the existing review of project permits or oil spill contingency plans.
I heard an Alyeska employee describe that compressed and super-cooled liquid natural gas makes for a stable pipeline in permafrost ground but can cause subsurface ice formation if the buried pipe is too close to waterbodies, which could be a problem to fish passage or spawning/rearing habitat at pipeline stream crossings.	There is no need to supercool gas to a liquid state. It can flow through a pipeline as a vapor.
Mitigation Measure 18a notes that "non-burnable wastes must be disposed of at an approved upland site." Do not dump garbage in the state game refuge. Haul out whatever cannot be burned in an approved manner.	An approved upland site does not exist in the MFSGR. Therefore, non-burnable wastes will be hauled out and properly disposed of.
Why is the term of the exploration license not specified?	Once the extent of the license area has been determined and development of the mitigation measures has been completed, the division's Resource Evaluation group can then determine

	how much time would be required to conduct exploration activities. Based on their evaluation, the Commissioner sets the term of license. This is done right before the final finding is issued, following the public comment periods. The term of the license, as stated in Chapter Eight, is seven years.
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Petition

The following 272 people signed a petition to the Division of Oil and Gas that stated:

We the undersigned support the efforts of Doyon Limited and Andex Resources, LLC to explore the Nenana basin for natural gas, and we urge the State of Alaska to grant an exploration license to Andex for all area in the proposed license, subject to all required permits and appropriate mitigation measures.

(NOTE: Some of the printed names were difficult to read, and some did not include their community; our apologies for any misread names or misinterpreted locations.)

Ackerman, Gary	Fairbanks AK
Ackerman, Geoffrey H.	Fairbanks AK
Akin, John	Fairbanks AK
Animashavio, Pamela	Fairbanks AK
Ansaknak, Elia	Nenana AK
Arundel, H. Patrick	Fairbanks AK
Assyd, Ken	Fairbanks AK
Bailey, James	Fairbanks AK
Baldwin, Wayne	Fairbanks AK
Bankdall, Scott	Fairbanks AK
Baron, Ed	Fairbanks AK
Baxter, Ron	Fairbanks AK
Beattus, Linus	Fairbanks AK
Bennett, Charlie	Fairbanks AK
Bennett, Mike	Fairbanks AK
Benton, John	Fairbanks AK
Blevins, Brian	Fairbanks AK
Bostrom, Maynard	Fairbanks AK
Bower, Dale	Ester AK
Braley, Al	Fairbanks AK
Brees, Kyle	Fairbanks AK
Brice, Tom	Fairbanks AK
Bridgers, Mark T.	Tok AK
Brooks, Tom	Fairbanks AK
Brown, Elizabeth T.	Fairbanks AK
Buchanan, Doug	Fairbanks AK
Burch, Roger	Fairbanks AK
Burke, Gary	Fairbanks AK
Bush, Patrick	Fairbanks AK

Bustos, Isaura	Fairbanks AK
Bustos, Martin	Fairbanks AK
Calvin, Charlie	Fairbanks AK
Campbell, Greg	Fairbanks AK
Campbell, Robin	Nenana AK
Campion Jr., James L.	Fairbanks AK
Carlson, Edward J.	Fairbanks AK
Carlson, Joseph	Fairbanks AK
Carroll, Fred	Fairbanks AK
Case, Steve	Fairbanks AK
Casson, L. David	Galena AK
Charlie, Angela	Nenana AK
Charlie, Cynthia D.	Nenana AK
Charlie, Donald E.	Nenana AK
Charlie, Virginia H.	Nenana AK
Christensen, Rai	Fairbanks AK
Cole, Eleanor	Nenana AK
Coleman, Richard	Fairbanks AK
Coleman, Shane L.	Fairbanks AK
Cones, Jesse	Healy AK
Conrad, Tim	Nenana AK
Corkrand, Leland D	Fairbanks AK
Creamer, Jeff	Fairbanks AK
Crookham, Jeff	Nenana AK
Cruikshank, Scott	Fairbanks AK
Dalton, George	Fairbanks AK
DeHews, Arnold T.	Clear AK
Demerjian, Gregory	Fairbanks AK
Dobbs, Jacob	Fairbanks AK
Dorman, Darrell	Galesna AK
Duke, Roger	Galena AK
Dunn, Randy A.	Fairbanks AK
Duyck, Jerry	Nenana AK
Eddy, James A.	Fairbanks AK
Edwin, Garrett	Nenana AK
Eggleston, Ken	Nenana AK
Eggleston, Travis	Fairbanks AK
Ellingson, Duane D.	Two Rivers AK
Evan, Killian	Nenana AK
Evans, Pete	Fairbanks AK
Fair, Mike	Fairbanks AK
Fischer, David K.	Fairbanks AK
Flanagan, Ed	Juneau AK
Freshwaters, Nark	Fairbanks AK
Friberg, Michael	Fairbanks AK
Gammon, Wayne C.	Fairbanks AK
Getger, Glenn T.	Fairbanks AK
Ginley, Kevin M.	Fairbanks AK
Gloko, William	Nenana AK

Goetz, William M.	Fairbanks AK
Grant, Mathew	North Pole AK
Graybeal, Derek	Fairbanks AK
Groysr, Greg G.	Fairbanks AK
Gustafson, Olaf	North Pole AK
Hagberg, Robert W.	Fairbanks AK
Halden, Mary	Fairbanks AK
Hall Ronald C.	Fairbanks AK
Hardesty, Katie	Fairbanks AK
Hardesty, Lester	North Pole AK
Harrell II, Howard E.	Fairbanks AK
Hartley, Emmett	Healy AK
Harwood, Aimee	Fairbanks AK
Hasting, Nick	Fairbanks AK
Hatten, Donald J.	Galena AK
Hechert, Randy	Fairbanks AK
Hedge, Debbie	Wasilla AK
Helms, Bret	Fairbanks AK
Helms, Kurt C.	Fairbanks AK
Henry, Jennie	Nenana AK
Hensley, Mark	Nenana AK
Heuera, Raymond	North Pole AK
Hines, Alan R.	Fairbanks AK
Hines, Albert C.	Fairbanks AK
Hoitt, Kathy	Fairbanks AK
Holtmy, Daniel	Fairbanks AK
Hoyt, Jeffrey E.	Galena AK
Hubler, Robert	Fairbanks AK
Huntington, Tom	Galena AK
Hupprich, Randy	Fairbanks AK
Isaac, Edward	Fairbanks AK
James, William	North Pole AK
Jensen, Rodney	Nenana AK
Johansen, Chris	Fairbanks AK
Johnson, Jerome	Fairbanks AK
Johnson, Matt	Fairbanks AK
Jones, Troy	Galena AK
Kamuck, Willie	Fairbanks AK
Keegan, Jim	Fairbanks AK
Kehle Sr., Lawrance	Nenana AK
Kelley, Charles	Soldotna AK
Ketzler, Tim	Nenana AK
Kim-Alcain, Aaron	Fairbanks AK
Kissinger, Dave	Fairbanks AK
Knabe, Dan	Fairbanks AK
Knabe, John	Fairbanks AK
Knight, Russell	Galena AK
Koumal, Rene P.	Fairbanks AK
Laiti, Bruce	Fairbanks AK

Laiti, Candice E.	Fairbanks AK
Laiti, Jim	Nenana AK
Laiti, William	Fairbanks AK
LaJiness, Nick	North Pole AK
Larsen, Bruce	Fairbanks AK
Lebert, Michael H.	Fairbanks AK
Lee, Wendy S.	Fairbanks AK
Leranclear, John	Fairbanks AK
Lewis Jr., Willie	Fairbanks AK
Lord, Victor W.	Nenana AK
Lows, Jesse	Healy AK
Ludwig, B.	Fairbanks AK
Lurm, Steve	Fairbanks AK
Lynch, Roger	North Pole AK
Macchione, Eric	Fairbanks AK
Macomber, Derek	Fairbanks AK
Madden, Jeremy H.	Fairbanks AK
Magnuson, Pat	Fairbanks AK
Martin, Lorraine M.	North Pole AK
Mathews Terry	North Pole AK
Mathews, Arthur C.	North Pole AK
Mayo, Connie	Nenana AK
McBride, E.D.	Fairbanks AK
McGhee, Brad	Soldotna AK
McGlaugll, Michael	Galena AK
McGovern, Ken	Fairbanks AK
McGovern, Marks M.	North Pole AK
McMillan, Kurt J.	Fairbanks AK
McMullin Sr., Lawrence Scott	Fairbanks AK
Meadows, Robert	North Pole AK
Misivk, David J.	Fairbanks AK
Mitchel, Brent	Nenana AK
Molesky, Shane	Fairbanks AK
Monroe, Edgar	Nenana AK
Moses, Laurel	Nenana AK
Motoris, Michael S	Fairbanks AK
Muncz, Johnny	Fairbanks AK
Natl, Andy	Fairbanks AK
Neff, Richard	Fairbanks AK
Neill, Diane M.	Nenana AK
Nuyes, Patrick	Fairbanks AK
O'Brady, Sean	Fairbanks AK
O'Donnell, Charles S.	Galena AK
O'Mahoney, Senan	Fairbanks AK
O'Rear, Shawn L.	North Pole AK
Oheavy, Debra	Fairbanks AK
Olih, Conrad	Galena AK
Owens, Joel	Fairbanks AK
Owens, Vernon D.	North Pole AK

Paden, Scott	Fairbanks AK
Parker, Harold R.	Fairbanks AK
Pasillas, Jayson	Fairbanks AK
Patrick, Joe	Nenana AK
Perry, William	North Pole AK
Phillips, Chris	Cantwell AK
Pierce, Jack L.	Fairbanks AK
Pierce, Robert L.	Nenana AK
Pixley, Dave	Galena AK
Poland, John	Fairbanks AK
Pratt, Tim	Delta Junction AK
Prentiss, Richard	Fairbanks AK
Putt, Danny W.	Fairbanks AK
Pwyear III, Eddie	Nenana AK
Quackenbush, Glen	Fairbanks AK
Quackenbush, Jay	Fairbanks AK
Raapria, Patrick	Fairbanks AK
Rhines, Greg	Fairbanks AK
Rice, Sean	North Pole AK
Richard, Fred	Fairbanks AK
Richardson, Tom	Fairbanks AK
Ritter, James D.	Fairbanks AK
Roberts, Michael	Fairbanks AK
Roberts, Phillip	Nenana AK
Robets, Wally	Fairbanks AK
Rodgers, P.D.	Fairbanks AK
Rogers, Charlie G.	Fairbanks AK
Rufli, Ted	Fairbanks AK
Runyan, Ben	Fairbanks AK
Ryan, David T.	North Pole AK
Sager, Brant	Nenana AK
Sam, Dominic E.	Nenana AK
Schick, Richard N.	Fairbanks AK
Schieber, David	North Pole AK
Schneider, George	Nenana AK
Schnekerborger, Jon	Fairbanks AK
Schruf Jr., Josef	North Pole AK
Sellers, Linda	Fairbanks AK
Sexton, Chris	Fairbanks AK
Sexton, Mark	Fairbanks AK
Sharp, Tim	Fairbanks AK
Sims, Joel	Fairbanks AK
Sipes, Joseph	North Pole AK
Smakes, Douglas	Fairbanks AK
Smart, Roy D.	Nenana AK
Smith, Vance M.	Fairbanks AK
Sothorn, Roland	Fairbanks AK
Sponsel, Jan	North Pole AK
Stebins, R.	Fairbanks AK

Steele, Carol	North Pole AK
Stepovich, Dom	Fairbanks AK
Stevens, William E.	Fairbanks AK
Stockton, Robert	Fairbanks AK
Stripp, Grant M.	Galena AK
Sundberg, Jim	Fairbanks AK
Sunnyboy, Mike	Fairbanks AK
Sunnyboy, Sharon	Fairbanks AK
Sunnyboy, Terrance	Fairbanks AK
Swanson, Robert	North Pole AK
Sweetman, John	Fairbanks AK
Swift, Bill H.	Fairbanks AK
Syund, Richard W.	Palmer AK
Tait, Michael	Galena AK
Tallman, Phillip	Fairbanks AK
Taylor, Monica	Fairbanks AK
Teel, Clyde W.	Fairbanks AK
Tilleson, Harold C.	North Pole AK
Timber, Misty	Nenana AK
Tolson, R., Patrick	Hydaburg AK
Tomasic, Leon F.	Fairbanks AK
Tompkins, Jimmy	Fairbanks AK
Uobile, Charles	Fairbanks AK
Upicksoun, Charles	Fairbanks AK
Vasilic, Nikola	Fairbanks AK
Vent, Edward	Nenana AK
Vogel, Yvonne	Fairbanks AK
Wakkic, David	Fairbanks AK
Walker, Kyl	Fairbanks AK
Wallis, Tim	Fairbanks AK
Walsh, John	Fairbanks AK
Ward, Jeff	Fairbanks AK
Ward, Raymond E.	Fairbanks AK
Weed, Carl S.	Fairbanks AK
Welsh, Michael	Fairbanks AK
Whaley, Curtis	Galena AK
Williams, Bill R.	Fairbanks AK
Williams, Rhonda	Fairbanks AK
Williams, Vincent	Nenana AK
Williams, Wade	Fairbanks AK
Wilson, Bobby G.	North Pole AK
Wilson, Mike	Fairbanks AK
Wingfield, J. C.	Fairbanks AK
Wischie, Denny	Galena AK
Withrow, Jason	Nenana AK
Wright, Marv	Fairbanks AK
Zundel, Sally	Fairbanks AK

